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| **Unit: UBD Robotics**  **Grade: 7th Grade Measurement** | |
| Stage 1: Desired Results | |
| **Established Goals** | |
| **South Dakota Middle School Technology Education Course Content Standards Covered**  TEMS.1.2 Examine the core relationships between technology and other areas of study  TEMS.4.1 Apply appropriate safety practices.  TEMS.4.5 Select and use transportation technologies.  **Technology Education Standard #1**  Students will develop an understanding of the characteristics and scope of technology.  **Technology Education Standard #17**  Students will develop an understanding of and be able to select and use information and communication technologies.  **Technology Education Standard #18**  Students will develop and understanding of and be able to select and use transportation technologies. | |
| **Understandings**  Students will understand:   * A robot is a machine that gathers information about its environment and uses that information to follow instructions to do work. * Robots will never be able to take control of the world. | |
| **Essential Questions**   * What is a robot? * When was the first robot built? * What are the advantages of using robots instead of people? * How do robots receive instructions to complete a programmed task? * What are the major parts of a robot system? * What is the home position? | |
| **Knowledge**  *Students will know…*   * That a robot can be used to automate tasks. * Robots are machines that are built and programmed to perform predefined tasks. * Computer programs instruct robots on input, process, and output. * The importance of the home position. | **Skills**  *Students will be able to…*   * Write and perform two programs using the SCORBOT-ER 4U software. * Name the major parts of a robot. * Move the robot arm using the computer keyboard. * Identify some of the repetitive tasks for which robots are used. * Identify some of the hazardous tasks for which robots are used. * Recognize and describe the function of the computer interface ports. |

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| **Unit: UBD Robotics**  **Grade: 8th Grade Technology** | |
| **Stage 2: Assessment Evidence** | |
| **Performance Task(s):**   * Students will write and demonstrate a soldering program using the SCORBOT-ER 4U software. * Students will write and demonstrate a mouse trap program using the SCORBOT-ER 4U software. * Students will use the MediaPLUS program to learn about robotics. * Students will work collaboratively to complete the module. | **Other evidence:**   * Students will complete four robotic activities. * Students will complete a robotics worksheet consisting of multiply choice and essay questions. * Completed a programming check-off sheet. * Assess understanding through module conversation and questioning. * Instructor observation of students working on task. * Assessment of student work. |

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| **Unit: UBD Robotics**  **Grade: 8th Grade Technology** |
| **Stage 3: Learning Activities** |
| Lesson Planner for 6 to 7-day Robotics Module  **Day 1**  Student(s) will taker a 10 question Pre-Test  Student(s) will watch the Introduction section of the Robotics ER4 MediaPlus program  Student(s) will be introduced to and practice with the robot system  Student(s) will answer Daily Response questions for activity 1  **Day 2**  Student(s) will watch the Start-up/Manual Control section of the Robotics ER4U MediaPlus program  Student(s) will be introduced to and practice the Start-up/Manual Controls of the robot system  Student(s) will answer Daily Response questions for activity 2  **Day 3**  Student(s) will watch the Soldering section of the Robotics ER4U MediaPlus program  Student(s) will set and use positions of the ER4U robotic  Student(s) will begin programming the ER4U robotic arm to perform a simulated soldering iron activity  **Day 4**  Student(s) will compete the simulated soldering iron activity ,and demonstrate it to the instructor for credit  Student(s) will answer Daily Response questions for activity 3  **Day 5**  Student(s) will watch the Positions section of the Robotics ER4U MediaPlus program  Student(s) will begin programming the ER4U robotic arm to perform a mouse trap activity  **Day 6**  Student(s) will complete the programming mouse trap activity  Student(s) will answer Daily Response questions for activity 4  Student(s) will complete 10 Post Test questions. |